Page 5, line 6, insert the letter *r* in "electrophoetically" so as to read --electrophoretically--.

Page 8, line 22, delete the letter *t* in "completmentary" so as to read --complementary--.

Page 11, line 8, after "invention." insert --In preferred embodiments, the nucleic acid sample comprises strands of greater than fifty nucleotides in length.--

Page 17, line 2, delete the letter *e* in "electrophoreseis" so as to read --electrophoresis--.

In the Claims:

Kindly amend claims 32-67 as follows.

In claims 33-35, 37-40 and 42, line 1, delete "39" and insert therefor --32--.

In claim 41, line 1, delete "47" and insert therefor --40--.

In claim 43, line 1, delete "49" and insert therefor --42--.

In claims 47, 49, 51, and 54-57, line 1, delete "53" and insert therefor --46--.

In claim 48, line 1, delete "54" and insert therefor --47--.

In claim 50, line 1, delete "56" and insert therefor --49--.

In claim 52, line 1, delete "53" and insert therefor --42--.

In claim 53, line 1, delete "59" and insert therefor --52--.

In claims 59, and 61-67, line 1, delete "65" and insert therefor --58--.

In claim 60, line 1, delete "66" and insert therefor --59--.

32. (Amended) A method for detecting a selected target sequence in a polynucleotide, said method comprising the steps of:

a) providing a sample comprising at least one strand of nucleic acid and its complementary strand, wherein one of said at least one strand of said nucleic acid and its complementary strand is suspected to include said selected target sequence;

b) mixing said sample with a PNA probe labeled with a detectable moiety, said PNA probe having a sequence complementary to at least a portion of said selected target

sequence, said mixing occurring in the presence of at least one nucleic acid/nucleic acid denaturing reagent permitting the formation of a PNA probe/nucleic acid complex when said selected target sequence is present;

c) separating said PNA probe/nucleic acid complex from other components of the mixture resulting from step b); and

d) detecting said PNA probe/nucleic acid complex.

36. (Amended) The method of claim [39] 32 further comprises adjusting the temperature of the [medium] mixture resulting from step b).

44. (Amended) The method of claim [39] 32 wherein step b) comprises:

a) mixing said sample with a plurality of PNA probes, each having a sequence complementary to at least a portion of a respective selected target sequence of one of said at least one strand of nucleic acid and its complementary strand, said mixing occurring under conditions permitting the formation of at least one PNA probe/nucleic acid complex when said respective selected target sequence is present.

45. (Amended) A method for detecting a plurality of selected target sequences in polynucleotides, said method comprising the steps of:

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a) providing a sample comprising at least one single stranded nucleic acid sequence and its complementary strand, wherein said at least one single stranded nucleic acid sequence and its complementary strand is suspected to include a plurality of selected target sequences;

b) mixing said sample with a plurality of PNA probes each having a sequence complementary to at least a portion of a respective one of said selected target sequences of said at least one single stranded nucleic acid sequence and its complementary strand, said mixing occurring under conditions permitting the formation of at least one PNA probe/nucleic acid complex when said respective one of said selected target sequences is present;

c) separating said at least one PNA probe/nucleic acid complex from other components of the mixture from step b); and

d) detecting said at least one PNA probe/nucleic acid complex.

46. (Amended) An apparatus [for detecting at least one selected target sequence in at least one polynucleotide, said apparatus] comprising:

a) a sample introduction zone;

b) at least one PNA probe[,] disposed to mix upstream of a separation zone with a sample introduced in said introduction zone, said sample comprising at least one double stranded polynucleotide [introduced in said introduction zone], said at least one PNA probe having a sequence complementary to a selected nucleotide target sequence suspected to be present in said at least one double stranded polynucleotide;

c) a nucleic acid/nucleic acid denaturing reagent permitting the formation of a PNA probe/nucleic acid complex when said selected target sequence is present; and

d) [a] said separation zone in communication with said introduction zone, said separation zone separating said PNA probe/nucleic acid complexes from other components present in said introduction zone and said separation zone.

58. (Amended) A microchip apparatus comprising a plurality of capillary channels, each said capillary channel further comprising:

a) a sample introduction zone;

b) at least one PNA probe[,] disposed to mix upstream of a separation zone with a sample introduced in each said introduction zone, said sample comprising at least one double stranded polynucleotide, [and] said at least one PNA probe having a sequence complementary to a selected target sequence suspected to be present in said at least one double stranded polynucleotide;